

I Claim:

1. 1. A method for evaluating operation of a compression cooling system; the method comprising the steps of:
 3. (a) in no particular order:
 4. (1) measuring a first temperature of said refrigerant in a saturated state;
5. and
 6. (2) measuring a second temperature of said refrigerant in a liquid state;
7. and
 8. (b) calculating a difference between said first temperature and said second
9. temperature to determine the extant amount of subcooling to which said
10. refrigerant is subjected.
1. 2. A method for evaluating operation of a compression cooling system as recited in
2. Claim 1 wherein the method comprises the further step of:
 3. (c) comparing said extant amount of subcooling with a predetermined acceptable
4. amount of subcooling.
1. 3. A method for evaluating operation of a compression cooling system as recited in
2. Claim 2 wherein the method comprises the further step of:
 3. (d) changing amount of refrigerant in said cooling system when said extant
4. amount of subcooling differs from said predetermined acceptable amount of
5. subcooling by greater than a predetermined amount.
1. 4. A method for evaluating operation of a compression cooling system as recited in
2. Claim 1 wherein the method comprises the further step of:
 3. (c) adding refrigerant to said cooling system when said extant amount of
4. subcooling is less than a predetermined acceptable amount of subcooling.
1. 5. A method for evaluating operation of a compression cooling system as recited in
2. Claim 3 wherein the method comprises the further step of:

(e) repeating steps (a) through (d) until said extant amount of subcooling differs from said predetermined acceptable amount of subcooling by less than said predetermined amount.

6. A method for evaluating operation of a compression cooling system as recited in
Claim 4 wherein the method comprises the further step of:

(d) repeating steps (a) through (c) until said extant amount of subcooling differs from said predetermined acceptable amount of subcooling by less than a predetermined amount.

7. A method for evaluating refrigerant charge in a compression cooling system; said system including a first system portion in which said refrigerant is substantially always in a saturated state and a second system portion in which said refrigerant is substantially always in a liquid state; the method comprising the steps of:

(a) in no particular order:

(1) measuring a first temperature of said refrigerant in said first system portion; and

(2) measuring a second temperature of said refrigerant in said second system portion;

(b) calculating a difference between said first temperature and said second temperature to determine the extant amount of subcooling effected by said system.

8. A method for evaluating refrigerant charge in a compression cooling system as recited in Claim 7 wherein the method comprises the further step of:

(c) comparing said extant amount of subcooling with a predetermined acceptable amount of subcooling.

9. A method for evaluating refrigerant charge in a compression cooling system as recited in Claim 8 wherein the method comprises the further step of:

3 (d) changing amount of refrigerant in said cooling system when said extant
4 amount of subcooling differs from said predetermined acceptable amount of
5 subcooling by greater than a predetermined amount.

1 10. A method for evaluating refrigerant charge in a compression cooling system as recited
2 in Claim 7 wherein the method comprises the further step of:

3 (c) adding refrigerant to said system when said extant amount of subcooling
4 differs from said predetermined acceptable amount of subcooling by less than a
5 predetermined amount.

1 11. A method for evaluating refrigerant charge in a compression cooling system as recited
2 in Claim 9 wherein the method comprises the further step of:

3 (e) repeating steps (a) through (d) until said extant amount of subcooling differs
4 from said predetermined acceptable amount of subcooling by less than said
5 predetermined amount.

1 12. A method for evaluating refrigerant charge in a compression cooling system as recited
2 in Claim 10 wherein the method comprises the further step of:

3 (d) repeating steps (a) through (c) until said extant amount of subcooling differs
4 from said predetermined acceptable amount of subcooling by less than a
5 predetermined amount.

1 13. A compression cooling system comprising:

2 (a) a compressor, an evaporator and a condenser fluidly coupled by at least one
3 fluid carrying line containing a refrigerant;
4 (b) a first temperature measuring device connected with said system for measuring
5 a first temperature of said refrigerant in a saturated state; and
6 (c) a second temperature measuring device connected with said system for
7 measuring a second temperature of said refrigerant in a liquid state.

1 14. A compression cooling system as recited in Claim 13 wherein the system further
2 comprises:

3 (d) a calculating device coupled with said first temperature measuring device and
4 said second temperature measuring device; said calculating device calculating a
5 difference between said first temperature and said second temperature to
6 determine an extant amount of subcooling effected by said system.

1 15. A compression cooling system as recited in Claim 14 wherein the system further
2 comprises:

3 (e) fluid access fittings in said fluid carrying line for effecting fluid
4 communication with the system from without the system; said fluid access fittings
5 being configured to accommodate a user coupling a refrigerant source with said
6 fittings for changing charge of said refrigerant within said system when said
7 extant amount of subcooling differs from a predetermined acceptable amount of
8 subcooling by greater than a predetermined amount.

1 16. A compression cooling system as recited in Claim 15 wherein said predetermined
2 acceptable amount of subcooling is provided to said user by a tool; said tool being
3 external of said system.

1 17. A compression cooling system as recited in Claim 15 wherein said predetermined
2 acceptable amount of subcooling is provided to said user by said calculating device.

1 18. A compression cooling system as recited in Claim 13 wherein the system further
2 comprises:
3 (e) fluid access fittings in said at least one fluid carrying line for effecting fluid
4 communication with the system from without the system; said fluid access fittings
5 being configured to accommodate a user coupling a refrigerant source with said
6 fittings for changing charge of said refrigerant within said system when said

7 extant amount of subcooling differs from a predetermined acceptable amount of
8 subcooling by greater than a predetermined amount.